CLAIMS

1. A method of detecting a leak of external air into a plasma reactor, comprising:

establishing a plasma inside a reactor, the plasma having a composition suitable to generate at least one predetermined compound when reacting with air,

detecting a light emission of the plasma, and

analyzing the light emission to identify the presence of the at least one predetermined compound.

2. The method according to claim 1, further including before establishing the plasma inside the reactor of:

processing at least one wafer of semiconductor material,

removing the at least one wafer from the reactor, and

cleaning the reactor.

3. The method according to claim 1, wherein the establishing the plasma inside the reactor includes providing a flow of a gas including a fluorocarbon constituent.

4. The method according to claim 3, wherein the establishing the plasma inside the reactor further includes:

keeping the gas at a pressure substantially in the range from 50mtorr to 110mtorr, and

applying a source power substantially in the range from 400W to 600W.

5. The method according to claim 3, wherein the air includes nitrogen, the at least one predetermined compound resulting from the reaction of nitrogen with the plasma.

6. The method according to claim 3, wherein the fluorocarbon constituent is CF_4.

7. The method according to claim 1, wherein the establishing the plasma inside the reactor includes providing a flow of a gas including a hydrocarbon constituent.

8. The method according to claim 7, wherein the hydrocarbon constituent is CH_4.

9. The method according to claim 7, wherein the establishing the plasma inside the reactor further includes:

keeping the gas at a pressure substantially in the range from 50mtorr to 110mtorr, and

applying a source power substantially in the range from 400W to 600W.

10. The method according to claim 7, further including before establishing the plasma inside the reactor of:

processing at least one wafer of semiconductor material,

removing the at least one wafer from the reactor, and

cleaning the reactor.

11. The method according to claim 7, wherein the air includes nitrogen, the at least one predetermined compound resulting from the reaction of nitrogen with the plasma.

12. The method according to claim 11, wherein the at least one predetermined compound is CN.

13. A computer readable medium comprising computer instructions for a data processing system, the computer instructions comprising instructions for:

establishing a plasma inside a reactor, the plasma having a composition suitable to generate at least one predetermined compound when reacting with air,

detecting a light emission of the plasma, and

analyzing the light emission to identify the presence of the at least one predetermined compound.

14. The computer readable medium of claim 13, further including before establishing the plasma inside the reactor of:

processing at least one wafer of semiconductor material,

removing the at least one wafer from the reactor, and

cleaning the reactor.

15. The computer readable medium of claim 13, wherein the establishing the plasma inside the reactor includes providing a flow of a gas including a fluorocarbon constituent.

16. The computer readable medium of claim 15, wherein the establishing the plasma inside the reactor further includes:

keeping the gas at a pressure substantially in the range from 50mtorr to 110mtorr, and

applying a source power substantially in the range from 400W to 600W.

17. The computer readable medium of claim 15, wherein the air includes nitrogen, the at least one predetermined compound resulting from the reaction of nitrogen with the plasma.

18. The computer readable medium of claim 15, wherein the fluorocarbon constituent is CF_4.

19. The computer readable medium of claim 13, wherein the establishing the plasma inside the reactor includes providing a flow of a gas including a hydrocarbon constituent.

20. The computer readable medium of claim 19, wherein the hydrocarbon constituent is CH_4.

21. The computer readable medium of claim 19, wherein the establishing the plasma inside the reactor further includes:

keeping the gas at a pressure substantially in the range from 50mtorr to 110mtorr, and

applying a source power substantially in the range from 400W to 600W.

22. The computer readable medium of claim 19, further including before establishing the plasma inside the reactor of:

processing at least one wafer of semiconductor material,

removing the at least one wafer from the reactor, and

cleaning the reactor.

23. The computer readable medium of claim 19, wherein the air includes nitrogen, the at least one predetermined compound resulting from the reaction of nitrogen with the plasma.

24. The computer readable medium of claim 23, wherein the at least one predetermined compound is CN.

25. An apparatus comprising:

means for establishing a plasma inside a plasma reactor, the plasma having a composition suitable to generate at least one predetermined compound when reacting with air;

means for detecting a light emission of the plasma; and

means for analyzing the light emission to identify the presence of the at least one predetermined compound for detecting a leak of external air into the plasma reactor.

26. The apparatus of claim 25, wherein the means for establishing the plasma inside the plasma reactor includes means for providing a flow of a gas including a fluorocarbon constituent.

27. The apparatus of claim 25, wherein the means for establishing the plasma inside the plasma reactor further includes:

means for keeping the gas at a pressure substantially in the range from 50mtorr to 110mtorr, and

means for applying a source power substantially in the range from 400W to 600W.

28. The apparatus of claim 25, wherein the means for establishing the plasma inside the plasma reactor includes means for providing a flow of a gas including a hydrocarbon constituent.

29. A system comprising:

a plasma reactor; and

an apparatus, coupled to the plasma reactor, for detecting a leak of external air into the plasma reactor, the apparatus comprising:

means for establishing a plasma inside the plasma reactor, the plasma having a composition suitable to generate at least one predetermined compound when reacting with air;

means for detecting a light emission of the plasma; and

means for analyzing the light emission to identify the presence of the at least one predetermined compound for detecting a leak of external air into the plasma reactor.

30. The system of claim 29, wherein the means for establishing the plasma inside the plasma reactor includes means for providing a flow of a gas including a fluorocarbon constituent.

31. The system of claim 29, wherein the means for establishing the plasma inside the plasma reactor includes means for providing a flow of a gas including a hydrocarbon constituent.